

# **SETI and the M Star Dilemma: Reconsidering the Habitability of Planets Orbiting M Stars**

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The SETI Institute and UC Berkeley are building the Allen Telescope Array (ATA), the next generation cm wavelength radio telescope, that will be used for simultaneous SETI (Search for Extraterrestrial Intelligence) and traditional radio astronomy projects. The key to this multiple use strategy is a large list of target stars which represent credible abodes for technological civilizations. For a reasonable observing efficiency, we need about one million target stars.

Traditionally, SETI programs have been limited to “solar-type” stars. Low mass stars, spectral type M, are far more numerous. If they are viable hosts for habitable worlds, then expanding the search to include M stars would greatly increase the chances for a successful SETI effort. Conventional wisdom said that M stars were so cool that the habitable zone would be small and close to the star, causing a potentially habitable planet to be tidally locked to the star, with possibly dire consequences for life. Furthermore, these small stars flare, producing hard radiation that could be hazardous to life on the surface of nearby planets. The discovery of extremophiles and the development of more complex atmospheric and radiative transfer models allow us to reconsider the issue of habitable planets orbiting M stars. We will convene a series of workshops, including members of ten NAI teams, to discuss the relevant issues and layout a plan for subsequent research. The first workshop is scheduled for July 18-20, 2005. A second workshop will follow 12 to 18 months later.